Plant Physiol. (1999) 121: xxv–xxvii
0032-0889/99/121/xxv/03

Author Index

A

Ait-Ali, Tahar, 783
Akamatsu, Taku, 715
Akashi, Tomoyoshi, 821
Alegre, Leonor, 1047
Allen, Damian J., 489
Allen, Nina Strömgren, 1291
Almoguera, Concepción, 723
Amin, Pinky, 61
An, Gynheung, 373
Andrews, T. John, 579
Aoki, Toshio, 821
Auguy, Florence, 113
Avigne, Wayne T., 599
Avni, Adi, 345
Ayabe, Shin-ichi, 821

B

Badger, Murray, 675
Badger, Murray R., 1247
Bago, Berta, 263
Baird, Lisa M., 97
Baker, Neil R., 489
Barbier-Brygoo, Hélène, 253
Barrett, James E., 53
Barroso, Juan B., 921
Bauw, Guy C., 535
Becana, Manuel, 97, 879
Bécard, Guillaume, 263
Beekhuizen, Jan Gerard, 363
Bell, Alois A., 1017
Bellemare, Guy, 557
Benedict, Chauncey R., 1017
Benková, Eva, 245
Bennett, Alan B., 419, 1273
Bergounioux, Catherine, 857
Beriault, Jennifer N., 619
Berkowitz, Gerald A., 753, 995
Bernards, Mark A., 135
Bernhardt, Christine, 1081
Berryman, Alan Andrew, 565
Biesemans, Monique, 1281
Black, Colin Ramsay, 1227
Bleecker, Anthony B., 291
Bogusz, Didier, 113
Bohnert, Hans J., 45
Boland, Wilhelm, 153
Boller, Thomas, 391
Borland, Anne M., 849, 889
Borst-Vrensen, Tanja W.M., 1153
Bouwmeester, Harro J., 173
Boyer, John S., 25
Bradford, Kent J., 419, 1339
Braun, Edward L., 21
Broekaert, Willem F., 1093
Brosché, Mikael, 479
Brouillette, Janine, 263
Brown, Matthew I.N., 1163
Brzobohatý, Břetislav, 245
Büche, Claudia, 571
Bugos, Robert C., 207
Burget, Emilie G., 383
Busch, Karin B., 589

C

Cabanes-Macheteau, Marion, 333
Caldelari, Daniela, 1359
Cantón, Francisco R., 1207
Carlson, Susan J., 1025
Carranco, Raúl, 723
Carrillo, Néstor, 471
Chamberland, Hélène, 557
Chang, Sue-Hwei, 207
Chapman, Kent D., 1299
Chatfield, Steven P., 839
Cheikh, Nordine, 1143
Chejanovsky, Nor, 345
Chen, Qianhong Grace, 291
Chevalier, Christian, 857
Choe, Sunghwa, 743
Choi, Eun Jeong, 147
Choi, Hyunjung, 147
Choi, Jae-Hyuk, 411
Chourey, Prem S., 1025
Chow, Wah Soon, 675
Chrispeels, Maarten J., 353
Christiansen, Erik, 565
Chung, Hwa-Jee, 429
Ciceri, Pietro, 1321
Civello, Pedro Marcos, 1273
Clark, David G., 53
Cohen, Eitan, 345
Colcombet, Jean, 253
Cooley, Michael B., 1339
Corpas, Francisco J., 921
Coruzzi, Gloria M., 301
Crepeau, Marc W., 629
Croker, Steve J., 1037
Crooks, Kim, 333
Cushman, John C., 545

D

Dahal, Peetambar, 1339
Dalton, David A., 97
Davey, Mark W., 535
Davies, Eric, 517
Davis, Gordon, 1037
de Boer, Albertus H., 81
del Río, Luis A., 921
Dengler, Nancy G., 731
Derksen, Jan, 363
Deshpande, Vasanti V., 497
Devine, Malcolm D., 619
Dicke, Marcel, 173
Doan, Danny N.P., 965
Dongen, Walter Van, 245
Doo, In-Suk, 147
Dorey, Stéphan, 163
Douds, David D., Jr., 263
Downie, A. Bruce, 419, 1339
Du, Quansheng, 345
Duhoux, Emile, 113
Dunahay, Terri G., 1127

E

Eannetta, Nancy, 453
Edwards, Janice, 1143
Eggermont, Kristel, 1093
Ehwald, Rudolf, 829
Eichenberg, Klaus, 571
Eisinger, William R., 1375
Ekblad, Lars, 507
Engelberth, Jürgen, 153
Enkerli, Jürg, 391
Escuredo, Pedro R., 97
Evans, John R., 317

F

Faye, Loïc, 333
Feldmann, Kenneth A., 743
Felix, Georg, 391
Felle, Hubert H., 273, 905
Ferl, Robert J., 429
Findell, Jennifer L., 291
Fitchette, Anne-Catherine, 333
Fleischer, Axel, 829
Fleming, Warren D., 135
Flexas, Jaume, 675
Fowler, Thomas J., 1081
Frachisse, Jean-Marie, 253
Frances, Shannon, 783
Franceschi, Vincent Ray, 565
Franche, Claudine, 113
Fritig, Bernard, 163
Froehlich, John E., 237
Frohlick, Jennifer A., 1127
Fromm, Hillel, 589
Frutz, Thierry, 113
Fujikawa, Seizo, 897
Fujioka, Shozo, 743
Fujita, Naoko, 399
Fukuzawa, Hideya, 1329
Funada, Ryo, 897
Furman-Matarasso, Noa, 345

G

Gallagher, Larry A., 1127
Garden, Hermann, 1349
Gardner, Richard C., 1103
Gaskin, Paul, 1037
Gebbing, Thomas, 871
Genga, Annamaria, 1321
Geoffroy, Pierrette, 163, 215
Ghangas, Gurdev S., 453
Gherbi, Hassen, 113
Gidley, Michael J., 657
Gilot, Christophe, 535
Giri, Ashok P., 497
Gomez, Elisa, 1143
Gomord, Véronique, 333
Gordon, Anthony J., 97
Gothard, Michelle G.E., 657
Goubet, Florence, 281
Griffith, Marilyn, 665
Griffiths, Howard, 89, 849
Grotewold, Erich, 21
Gubrium, Erika K., 53
Guern, Jean, 253
Guiltinan, Mark J., 225
Gupta, Vidya S., 497

H

Hadfield, Kristen A., 419
Haigh, Anthony M., 1339
Haley, Ann, 705
Hall, Anne E., 291
Han, Yu, 535
Hanania, Uri, 345
Hannah, L. Curtis, 411
Hannukkala, Asko, 665

Hansen, Geneviève, 71
Hanzawa, Yoshie, 715
Harada, Kyuya, 399
Harrak, Hassan, 557
Harris, Darby M., 609
Harsulkar, Abhay M., 497
Hartwell, James, 889
Haslam, Richard P., 849
Hawes, Chris, 333
Hedden, Peter, 775
Heimovaara-Dijkstra, Sjoukje, 81
Helliker, Brent R., 849
Hennig, Lars, 571
Henry-Vian, Chantal, 517
Hiilovaara-Teijo, Mervi, 665
Hirose, Naoya, 805
Hoffman, Neil E., 61
Hoffmann, Bernd, 1069
Hohmann, Stefan, 45
Horsman, Geoff P., 619
Horton, Peter, 89
Hudson, Graham S., 579
Hueros, Gregorio, 1143
Hughes, Jon, 1059
Hulzink, Raymond, 189
Hussain, Ahmed, 1227

I

Iba, Koh, 1239
Ikeda, Yoshihisa, 813
Inaba, Akitsugu, 1257
Iturbe-Ormaetxe, Iñaki, 97, 879

J

Jacobs, Michel, 1281
Jenkins, Gareth I., 889
Jensen, Richard G., 45
Jeong, Byeong-Ryong, 25
Jergil, Bengt, 507
Jordano, Juan, 723
Jouanin, Lise, 1169
Joubès, Jérôme, 857
Jun, Sung-Hoon, 373
Jung, Verena, 153
Just, Daniel, 857

K

Kadota, Akeo, 37
Kamiya, Yuji, 373, 783
Kang, Hong-Gyu, 373
Kauffmann, Serge, 163
Kawaide, Hiroshi, 373
Kawano, Shigeyuki, 461
Keegstra, Kenneth, 237
Kendrick, Richard E., 783
Keren, Nir, 1267
Kijne, Jan W., 81
Kim, Junyul, 373
Kim, Kyung-Nam, 225
Klee, Harry J., 53
Klein, Uwe, 1367
Knight, Marc R., 705
Kobayashi, Masatomo, 1037
Koch, Karen E., 599
Koch, Thomas, 153
Kochian, Leon V., 1375
Kodama, Hiroaki, 1239
Koizumi, Nozomu, 353, 813
Kok, Matthieu T.C., 363
Kolář, Jan, 245
Koltunow, Anna M., 437
Komeda, Yoshibumi, 715
Kondorosi, Ádám, 273
Kondorosi, Éva, 273
Kopp, Marguerite, 163
Koroleva, Olga Y., 1349
Kosegarten, Harald U., 1069
Kovaleva, Valentina, 929
Krämer, Ute, 1117
Krause, G. Heinrich, 1349
Krokene, Paal, 565
Krumm, Thomas, 153
Kubo, Akiko, 399
Kubo, Yasutaka, 1257
Kucho, Ken-ichi, 1329
Kuriyama, Hideo, 763
Kuroiwa, Tsuneyoshi, 461
Kusano, Tomonobu, 813
Kusch, Thomas, 1003

L

Lafontaine, Jean G., 557
Lagarias, J. Clark, 629
Lal, Shailesh, 411
Lamparter, Tilman, 1059
Langdale, Jane A., 1163
Lange, Theo, 1037
Laplaze, Laurent, 113
Lee, Sumin, 147
Lee, Youngsook, 147
Leech, Rachel M., 89
Leggat, William, 1247
Legrand, Michel, 215
Leng, Qiang, 753
Lerouge, Patrice, 333
Leyser, H.M. Ottoline, 839
Li, Alice X., 453
Li, Ning, 913
Li, Yan, 1281
Liu, Jinggao, 1017
Liu, Xuejun, 1257
Llewellyn, David B., 135
Locatelli, Franca, 1321
Low, Philip S., 147
Lupiáñez, José A., 921

M

Ma, Jiong, 995
Macháčková, Ivana, 245
Macheix, Jean-Jacques, 113
MacMillan, Jake, 1037
Madore, Monica A., 987
Mariani, Celestina, 189
Marrison, Joanne L., 89
Martin, Barry, 333
Martin, David N., 775
Marvin, Laure, 333
Matamoros, Manuel A., 97, 879
Matsuda, Toshiaki, 399
Maury, Stéphane, 215
Maxwell, Kate, 89, 849
Mazurkiewicz, Anna M., 1127
Medrano, Hipólito, 675
Meehl, Janet B., 1127
Meetam, Metha, 1267
Mella, R. Alejandra, 1339
Mengel, Konrad, 1069
Mercier, Richard W., 753
Mets, Laurens J., 731
Miernyk, Jan A., 695
Minchin, Frank R., 97
Mitchell, John T., 657
Miyagishima, Shin-ya, 461
Miyazawa, Yutaka, 461
Mohnen, Debra, 281
Montgomery, Beronda L., 629
Moran, Jose F., 97, 879
Mori, Satoshi, 947
Morison, James I.L., 489
Motyka, Václav, 245
Munné-Bosch, Sergi, 1047
Murphy, Angus S., 1375
Muto, Shoshi, 525
Myrick, Tammy L., 609

N

Nakamura, Reinosuke, 1257
Nakamura, Yasunori, 399
Nakanishi, Hiromi, 947
Nakatsuka, Akira, 1257
Napier, Johnathan A., 641
Nebenführ, Andreas, 1127
Nell, Terril A., 53
Nimmo, Hugh G., 889
Nishitani, Kazuhiko, 715
Nishiuchi, Takumi, 1239
Nishizawa, Naoko-Kishi, 947
Noguchi, Takahiro, 743
Nogués, Salvador, 489
Nussaume, Laurent, 61

O

Oh, Ki-Young, 147
Ohad, Itzhak, 1267
Ohlrogge, John, 1217
Ohtake, Yuhko, 715
Ohtani, Jun, 897
Ohyama, Kanji, 1329
Olivari, Claudio, 705
Oliveira, Igor C., 301
Olsen, Odd-Arne, 965
O'Neill, Malcolm A., 829
Oppedijk, Berry J., 81
Osmond, Charles Barry, 675
Østergaard, Jens, 535

P

Pakrasi, Himadri B., 1267
Palatnik, Javier F., 471
Palma, José M., 921
Papadakis, Anastasia K., 197
Paré, Paul W., 325
Parry, Devin H., 61
Parsons, Hannah L., 793, 1309
Patankar, Aparna G., 497
Patnoe, Jean-Marc M.L., 1117
Pattanagul, Wattana, 987
Pawlowski, Katharina, 113
Pei, Zhen-Ming, 977
Persans, Michael W., 1117
Persiau, Geert, 535
Peters, Winfried S., 905
Pfeffer, Philip E., 263
Phan, Thi-Hai, 857
Phinney, Bernard O., 1037
Pihakaski-Maunsbach, Kaarina, 665
Pijnenburg, Mary, 363
Pilgrim, Marsha L., 61
Pilon-Smits, Elizabeth A.H., 1169
Plante, Michèle, 557
Plourde, Guy L., 135

Poirier, Yves, 1359
Pollard, Mike, 1217
Pontieri, Vincenza, 731
Posthumus, Maarten A., 173
Powell, Ann L.T., 1273
Priefer, Ronny, 135
Proebsting, William M., 775

Q

Quail, Peter H., 1207

R

Raikhel, Natasha V., 929
Ranjekar, Prabhakar K., 497
Raschke, Klaus, 647
Raymond, Philippe, 857
Recourt, Kees, 363
Reid, James B., 783
Reiter, Wolf-Dieter, 383
Renz, Andreas, 123
Ritte, Gerhard, 647
Roberts, Andrew, 849
Roberts, Jeremy Alan, 1227
Roessner, Ute, 123
Rohrig, Kerstin, 647
Roosens, Nancy H., 1281
Rosenfeld, Johanna, 647
Rothan, Christophe, 857
Roubelakis-Angelakis, Kalliopi A., 197
Rubio, Maria C., 97, 879
Rudi, Heidi, 965
Rundle, Sabine J., 609

S

Sabatino, Anita, 135
Sabehat, Adnan, 1273
Sainani, Mohini N., 497
Sakai, Atsushi, 461
Salamini, Francesco, 1143
Salt, David E., 1117
Salvador, Maria L., 1367
Sandalio, Luisa M., 921
Sanderfoot, Anton A., 929
Sano, Hiroshi, 353, 813
Sano, Yuzou, 897
Satiat-Jeunemaitre, Béatrice, 333
Sato, Yoshikatsu, 37
Satoh, Hikaru, 399
Sayanova, Olga, 641
Schäfer, Eberhard, 571
Schaller, G. Eric, 291
Schmidt, Robert J., 1321
Schmude, Claudia, 1349
Schnyder, Hans, 871
Schroeder, Julian I., 977
Schultze, Michael, 273
Schwarz, Karin, 1047
Scott, Amie Caroline, 1291
Scott, Peter, 957
Shachar-Hill, Yair, 263
Shaff, Jon E., 1375
Shaw, Janine R., 411
Shen, Bo, 45
Shewry, Peter R., 641
Shimmen, Teruo, 525
Shioiri, Takayuki, 947
Shiomi, Shinjiro, 1257
Shu, Guoping, 731
Sieburth, Leslie E., 1179
Sitrit, Yaron, 419
Skibinski, Gaia, 1163
Solheim, Halvor, 565
Somers, David E., 9
Sommarin, Marianne, 507
Sonobe, Seiji, 525
Staehelin, L. Andrew, 1127
Steffens, John C., 453
Stein, Joshua C., 71
Steudle, Ernst, 1191
Stipanovic, Robert D., 1017
Stirnberg, Petra, 839
Stolle-Smits, Trinette, 363
Strid, Åke, 479
Sturm, Arnd, 1
Suh, SuJeoung, 147
Sui, Sen Fang, 913
Sy, Donna A.C., 61

T

Tabaeizadeh, Zohreh, 557
Taiz, Lincoln, 1375
Takahashi, Michiko, 947
Takahashi, Taku, 715
Takano, Hiroyoshi, 461
Takatsuji, Hiroshi, 1153
Takatsuto, Suguru, 743
Tarun, Alice S., 1169
Tax, Frans E., 743
Taybi, Tahar, 545
Taylor, Ann T. Schroeder, 147
Taylor, Ian Blackwood, 1227
Terry, Norman, 1169
Testerink, Christa, 81
Thomine, Sébastien, 253
Thomma, Bart P.H.J., 1093
Thompson, Richard D., 1143
Tierens, Koenraad F.M.-J., 1093
Tierney, Mary L., 1081
Toldi, Otto, 957
Trethewey, Richard N., 123
Trewavas, Anthony J., 705
Tripathy, Swati, 1299
Triplett, Barbara A., 181
Truesdale, Mark R., 957
Tsiantis, Miltos, 1163
Tumlinson, James H., 325
Tyree, Melvin T., 1191

U

Ujino, Tokuko, 353
Utsumi, Yasuhiro, 897

V

Valle, Estela M., 471
van der Krol, Alexander R., 1153
van der Luit, Arnold H., 705
van der Meulen, René M., 81
van der Plas, Linus H.W., 1153
van Leeuwen, Wessel, 1153
Vanlerberghe, Greg C., 793, 1309
Van Montagu, Marc C., 535
Van Onckelen, Harry A., 245
van Poecke, Remco M.P., 1153
Venables, Barney J., 1299
Ventre, Giovanni, 1359
Veramendi, Jon, 123
Verbruggen, Ingrid, 1281
Verstappen, Francel W.A., 173
Vian, Alain, 517
Viotti, Angelo, 1321
Vivian-Smith, Adam, 437
Voesenek, Laurentius A.C.J., 189
von Caemmerer, Susanne, 579
Voogt, Charlotte, 1153
Voragen, Alphons G.J., 363
Vorst, Oscar F.J., 1153
Vriezen, Wim H., 189

W

Wada, Masamitsu, 37
Waffenschmidt, Sabine, 1003
Walden, Adrian R., 1103
Walter, Christian, 1103
Wan, Xianchong, 939
Wang, Hong Wei, 913
Wang, Mei, 81
Ward, John M., 977
Watt, Michelle, 317
Weber, Stefan U., 1169
Wei, Chunfang, 1191
Weldon, Marcia, 1143
Weller, James L., 783
Westergren, Tomas, 507
Whitney, Sarah E.C., 657
Whitney, Spencer M., 579
Whittaker, David J., 181
Wilkins, Malcolm B., 889
Willem, Rudolph, 1281
Willmitzer, Lothar, 123
Winter, Klaus, 1349
Witters, Erwin, 245
Woessner, Jeffrey Paul, 1003
Wu, Yong, 599

X

Xu, Peilin, 913

Y

Yamaguchi, Hirotaka, 947
Yamamoto, Harry Y., 207
Yamaya, Tomoyuki, 805
Yan, Xiange, 1117
Yanagisawa, Shuichi, 1239
Yang, Hong, 1339
Yang, Shang Fa, 913
Yang, Xiaolong, 135
Yao, Weizhe, 753
Yeh, Kuo-Chen, 629
Yellowlees, David, 1247
Yip, Justine Y.H., 793, 1309
Yokota, Etsuo, 525
Yoshida, Shigeo, 743
Young, Michael E., 237
Yu, Su-May, 687
Yu, Xiao-Ming, 665
Yuan, Heng, 743
Yukawa, Chiharu, 525

Z

Zeng, Ying, 599
Zhang, Xiao, 995
Zheng, Haiyan, 929
Zhou, Huiqing, 913
Zhu, Ken, 913
Zhu, Yong Liang, 1169
Zinselmeier, Christopher, 25
Zwiazek, Janusz J., 939

Plant Physiol. (1999) 121: xxix–xxxv
0032-0889/99/121/xxix/07

Subject Index

A

Abietane diterpenes, oxidized, in water-stressed rosemary plants, 1047
Abscisic acid, tomato mutant deficient in, aldehyde oxidase and xanthine dehydrogenase in, 315
ACC oxidase (*see* 1-Aminocyclopropane-1-carboxylate oxidase)
ACC synthase (*see* 1-Aminocyclopropane-1-carboxylate synthase)
Acetobacter xylinus, tomato cell wall mechanics and, 657
Acetylglufosinate, phloem transport of, in canola, 619
Active oxygen species, in mesophyll protoplasts of tobacco and grapevine, 197
Acto-myson system, in stop-and-go movements of Golgi stacks, 1127
Adenosylhomocysteine hydrolase, from *Arabidopsis*, 313
S-Adenosylmethionine
  from cotton plants, 1017
  from petunia, 1053
Adiantum capillus-veneris (*see* Fern)
ADP-glucose, in barley endosperm starch, 965
AGAMOUS cDNA (STAG1), from strawberry, 686
Alcohol dehydrogenase, in *Arabidopsis* roots and shoots, root growth environment and, 429
Aldehyde oxidase, in *flacca* mutant of tomato, 315
Alfalfa
  chloroplasts of, ATP synthase from, 313
  nod factor signal transduction in, Ca^{2+} in, 273
  plastids of, tRNA-Lys and maturase K genes from, 685
Algae
  cell wall proteins in, 1003
  symbiotic, inorganic carbon-concentrating mechanism in, 1247
Allene oxide synthase, from *Arabidopsis*, 312
Alternative oxidase
  in phosphate and respiratory restricted tobacco mitochondria, 1309
  in tobacco leaf mitochondria, 793
Amino acids, in glutamine synthetase expression in *Arabidopsis thaliana*, 301
1-Aminocyclopropane-1-carboxylate oxidase (ACC oxidase)
  nucleotide sequence of, 311
  in *Rumex palustris* during submergence, 189
1-Aminocyclopropane-1-carboxylate synthase (ACC synthase), in tomato, conserved arginine 286 in, 913
Amylopectin biosynthesis, in rice endosperm, starch-debranching enzymes in, 399
Amyloplast development, in Bright Yellow-2 tobacco, hormonal control of, 461
Anion channel, in Arabidopsis hypocotyl cells, sulfate as substrate and activator in, 253
Annexin cDNAs, from *Arabidopsis*, 1054
Anther-specific genes, in *Pinus radiata* male cones, 1103
Apoplastic pH, Fe^{3+} reduction and, in sunflower leaves, 1069
Apoplastic proteins, snow mold-induced, in winter rye leaves, 665
Apoptosis
  mannose-induced, 71
  oxidative burst and defense responses to, in tobacco, 163
  tracheary element differentiation and, in loss of tonoplast integrity, in zinnia, 763
Arabidopsis
  acaulis mutant of, endoxyloglucan transferase gene expression in, 715
  adenosylhomocysteine hydrolase from, 313
  allene oxide synthase from, 312
  annexin cDNAs from, 1054
  ascorbate biosynthesis in, 535
  AtJ3 in, as homolog to *Saccharomyces cerevisiae* YDJ1p, 1053
  At-TIR cDNA in, 1055
  AtXPO1 (AtCRM1) in, 311
  AXR1 gene of, lateral bud growth and, 839
  chloroplast signal recognition particle mutation in, phenotypes of, 61
  dwarf mutants of, brassinosteroid accumulation by, 743
  ethylene receptor in, ethylene binding and dominant insensitivity conferred by, 291
  10-formyletrahydrofolate synthetase from, 312
  galactose kinase Gal1 gene from, 1055
  glutamine synthetase expression in, carbon and amino acid modulation of, 301
  glutathione synthetase from, plastidic targeting sequences in, 312
  gymnosperm-like germin-like protein from, 312
  hypocotyl cells of, anion channel in, sulfate as substrate and activator in, 253
  leaves of
    sulfate transporters in, 686
    vein pattern in, auxin and, 1179
  Lewis a-containing *N*-glycans in, 333
  mannose-induced apoptosis in, 71
  Mre11 homolog of, recombinant mechanisms and, 312
  mur4 mutant of, uridine diphospho L-arabinose synthesis in, 383
  MYB-like genes from, 313
  parthenocarpy in, growth regulator induction of, 437
  PHYA gene expression in, light-imposed repression of, 1207
  plastidic pyruvate dehydrogenase from, 312, 1057
  proline-rich cell wall protein genes in, 1081
  protein phosphatase 2A regulatory subunit in, 311
  resistant to *Botrytis cinerea* infection, ethylene insensitivity gene in, 1093
  root cells of, AtVAM3p in prevacuolar compartment of, 929
  roots of
    alcohol dehydrogenase gene in, root growth environment and, 429
    gravitropism by, pH and, 1291
  seedlings of
    copper-induced K^+ leakage from, 1375
    phytochrome A in, 571
  seeds of, fatty acids in, 1359
  shoots of, alcohol dehydrogenase gene in, root growth environment and, 429
  succinic semialdehyde dehydrogenase from, 589
  TAP42 interaction with protein phosphatase 2A catalytic subunit in, 609
  threonyl-tRNA synthetase from, 1054
  transgenic, biliverdin reductase in, 629
  tunicamycin resistance in, 353
  wound-induced *FAD7* gene expression in, mediation of by leaves, stems, and roots, 1239
Arachis hypogea (*see* Groundnut)
Ascorbate biosynthesis, in Arabidopsis, 535
Aspen, seedlings of, root water transport in, mercuric chloride and, 939
Aster, cotyledons of, light effects on, 731
AtJ3, in Arabidopsis, as homolog to *Saccharomyces cerevisiae* YDJ1p, 1053
ATP synthase, from alfalfa chloroplasts, 313
At-TIR cDNA, from Arabidopsis, 1055
AtVAM3p, in Arabidopsis root cell prevacuolar compartment, 929
Auxin
  basic helix-loop-helix transcription factor induced by, in cotton, 685
  disrupted transport of, maize leaf development and, 1163
  and vein pattern in *Arabidopsis* leaves, 1179
Avicennia marina (*see* Mangrove)
Avocado, stearoyl-acyl carrier protein desaturase from, 1054
Avoidance response, of fern chloroplasts, 37

B

Bacteria, peroxidase-encoding cDNA induced by, from cotton, 312
Banana, fruit of, ethylene biosynthesis and ripening of, 1257
Barley
  embryos of, 14–3–3 isoforms in, 81
  endosperm starch in, ADP-glucose incorporated in, 965
  iron acquisition in, NAAT genes in, 947
Bean (*see* Fava bean; Green bean; Lima bean; Soybean; Winged bean)
BETL1 gene locus, in maize, 1143
Biliverdin reductase, in transgenic Arabidopsis, 629
Borage, cytochrome b_5 fusion desaturase from, 641
Borago officinalis (*see* Borage)

Borate ester, rhamnogalacturonan II cross-linking to, *Chenopodium album* cell wall pore size and, 829
Botrytis cinerea infection, *Arabidopsis* resistance to, ethylene insensitivity gene in, 1093
Brassica juncea (*see* Indian mustard)
Brassica napus (*see* Canola)
Brassica oleracea (*see* Broccoli)
Brassinosteroid accumulation, by Arabidopsis dwarf mutants, 743
Bright Yellow-2 tobacco
  amyloplast development in, hormonal control of, 461
  myosins in, 525
Broccoli, STM homolog encoded in, 1383
Bud growth, *Arabidopsis AXR1* gene and, 839

C

Cadmium tolerance and accumulation, in Indian mustard, γ-glutamylcysteine synthetase overexpression and, 1169
Cajanus cajan (*see* Pigeonpea)
Calcium, in alfalfa Nod factor signal transduction, 273
Calcium signaling pathways, calmodulin gene expression regulation by, in tobacco seedlings, 705
Calmodulin gene expression, calcium signaling pathway regulation of, in tobacco seedlings, 705
Canola
  diacylglycerol acyltransferase from, 1053
  phloem transport of glufosinate and acetylglufosinate in, 619
Carbohydrate synthesis, in wheat grain, 871
Carbon
  in glutamine synthetase expression in Arabidopsis, 301
  metabolism of
    in Crassulacean acid metabolism plants, fructose 2,6-bisphosphate concentration and, 957
    in *Glomus intraradices* spores on carrot roots, 263
Carbon dioxide fixation, in Crassulacean acid metabolism plants, metabolite control of, 889
Carbonic anhydrase, regulation by enhancer and silencer regions of *Chlamydomonas reinhardtii*, 1329
δ-Carotene desaturase, from tomato, 1384
Carrot, roots of, carbon metabolism in *Glomus intraradices* spores on, 263
Casuarina glauca, nodules of, *Frankia*-infected compartments of, flavan delimitation of, 113
Cation channel, cyclic nucleotide-gated, in plant, 753
Cavitation in earlywood vessels of *Fraxinum mandshurica* var *japonica*, during freezing and thawing, 897
Cell wall proteins, in *Chlamydomonas reinhardtii*, 1003
Cell walls
  of Arabidopsis, proline-rich protein genes in, 1081
  of *Chenopodium album*, pore size of, borate ester and rhamnogalacturonan II cross-linking and, 829
  of green bean, development of, polysaccharide changes during, 363
  of rice, resistance gene homolog from, 686
  of tomato
    cellulose and xyloglucan in mechanics of, 657
    drought-regulated protein in, 557
Cellulose, in tomato cell wall mechanics, 657
Ceratocystis polonica fungus, induced resistance to, in Norway spruce, 565
Chenopodium album, cell walls of, pore size of, borate ester and rhamnogalacturonan II cross-linking and, 829
Cherry, S-RNases from, 1054
Chickpea, proteinase inhibitors from, in inhibition of *Helicoverpa armigera* larval growth, 497
Chilling
  in inhibition of photosynthesis in grapevine leaves, O_2 uptake and, 675
  petunia zinc finger transcription factor gene induced by, 1153
  in protein phosphatase 2A catalytic subunit interaction with TAP42, in Arabidopsis, 609
Chitosan, stomatal aperture reduction by, in response to elicitor, in tomato and *Commelina communis*, 147
Chlamydomonas reinhardtii
  cell wall proteins in, 1003
  chloroplasts of, RNA degradation in, 1367
  enhancer and silencer regions of, carbonic anhydrase regulation by, 1329
  photosystem II subunit PsbW from, 313
Chloroplast signal recognition particle mutation, of *Arabidopsis*, phenotypes in, 61
Chloroplasts
  of alfalfa, ATP synthase from, 313
  of *Chlamydomonas reinhardtii*, RNA degradation in, 1367
  of fern, avoidance response in, 37
  of *Guzmania monostachia*, acclimation to high light by, 89
  of pea, GTP in protein import into, 237
  of tobacco, cytokinins in, light/dark treatment and, 245
  of tomato, response to flame wounding and electrical stimulation, 517
  of wheat
    cytokinins in, light/dark treatment and, 245
    glutamine synthetase in, oxidative degradation of, 471
Cicer arieinum (*see* Chickpea)
Circadian clock
  and Opaque2 protein in maize, 1321
  physiological and molecular bases of, 9
Citrullus lanatus (*see* Watermelon)
Cohesion-tension theory, in measurement of xylem pressure in maize leaves, 1191
Coleus, raffinose family oligosaccharide metabolism in, water deficit and, 987
Coleus blumei (*see* Coleus)
Commelina communis, guard cells of, response to elicitors, 147
Cones, male, of *Pinus radiata*, anther-specific and pathogenesis response genes in, 1103
Corn (*see* Maize)
Cotton
  S-adenosylmethionine from, 1017
  auxin-induced basic helix-loop-helix transcription factor from, 685
  bacteria-induced peroxidase-encoding cDNA from, 312
  fibers of, gene-specific α-tubulin regulation in, 181
  locules of, GTP-binding protein cDNAs from, 685
  proteinase inhibitors from, in inhibition of *Helicoverpa armigera* larval growth, 497
Cotyledons, of aster, light effects on, 731
Cowpea, root nodules of, glutathione and homoglutathione synthesis in, 879
Crassulacean acid metabolism, in ice plant leaves, 545
Crassulacean acid metabolism plants
  carbon metabolism in, fructose 2,6-bisphosphate concentration and, 957
  diurnal phases of, Rubisco activity in, 849
  phospho*enol*pyruvate carboxylase kinase and CO_2 fixation in, metabolite control of, 889
Cucumber
  herbivory-induced nerolidol synthase activity in, 173
  hypocotyls of, H_2O_2 elicitors in, 1057
Cucumis sativus (*see* Cucumber)
Cyanobacterium, oxygenic photosynthesis in, PsbY protein in, 1267
Cyclic nucleotide-gated cation channel, in plant, 753
Cyclin-dependent kinase A, in developing tomato fruit, 857
Cycloartenol synthase
  from *Luffa cylindrica*, 1384
  rice cDNA similar to, 686
Cystathionine γ-synthase, from potato, 1053
Cytochrome b_5 fusion desaturase, from borage, 641
Cytokinins
  in modulation of wheat *WPK4* gene encoding SNF1-related protein kinase, 813
  in wheat and tobacco chloroplasts, light/dark treatment and, 245

D

Dark stress, senescence induced by, in root nodules of pea and green bean, 97
Dark treatment, wheat and tobacco chloroplast cytokinins and, 245
Daucus carota (*see* Carrot)
Deacidification, in Crassulacean acid metabolism plants, carbon metabolism in, fructose 2,6-bisphosphate concentration and, 957
Dendrobium crumenatum (*see* Orchid)
Desiccation (*see also* Drought; Water stress)
  of lily, during pollen development, 1053
  petunia zinc finger transcription factor gene induced by, 1153
Diacylglycerol acyltransferase, from *Brassica napus*, 1053
Dinoflagellates, inorganic carbon-concentrating mechanism in, 1247
DNA laddering, mannose-induced, 71

Drought (*see also* Desiccation; Water stress)
protein regulated by, in tomato cell walls, 557
starch and maize kernel number in, 25

E

Electrical stimulation, tomato chloroplast response to, 517
Electronic plant gene register, 311, 685, 1053, 1383
Embryos, of barley, 14–3–3 isoforms in, 81
Endosperm
of maize, starch-branching enzyme I gene in, 225
of rice, amylopectin biosynthesis in, starch-debranching enzymes in, 399
Endosperm starch, in barley, ADP-glucose incorporated in, 965
Endoxyloglucan transferase gene expression, in *Arabidopsis acaulis* mutant, 715
2-Enoyl-CoA hydratase, from mangrove, 1055
Ethylene
biosynthesis of
banana fruit ripening and, 1257
in *Rumex palustris* during submergence, ACC oxidase activity in, 189
induction of, xylanase elicitor mutation and, in tobacco and tomato, 345, 391
plants insensitive to, root formation in, 53
tomato leaf expansion and shoot growth regulated by, 1227
Ethylene insensitivity gene, in Arabidopsis resistance to *Botrytis cinerea* infection, 1093
Ethylene receptor, of Arabidopsis, ethylene binding and dominant insensitivity conferred by, 291
Expansin gene, in ripening strawberry fruit, 1273

F

FAD7 gene expression, wound-induced, in Arabidopsis, mediation of by leaves, stems, and roots, 1239
Fatty acid desaturase, cytochrome b_5 fusion with, in borage, 641
Fatty acid transfer, in spinach leaves, 1217
Fava bean, guard cell vacuoles of, magnesium effects on, 977
Fe^{3+} reduction, apoplastic pH and, in sunflower leaves, 1069
Fern, chloroplasts of, avoidance response in, 37
Fibers, of cotton, gene-specific α-tubulin regulation in, 181
Flame wounding, tomato chloroplast response to, 517
Flavan-containing cells, delimitation of *Frankia*-infected *Casuarina glauca* compartments by, 113
Flaveria trinervia (*see* Aster)
10-Formyletrahydrofolate synthetase, from Arabidopsis, 312
14–3–3 isoforms, in barley embryos, 81
Fragaria × *ananassa* (*see* Strawberry)
Frankia, *Casuarina glauca* nodules infected with, flavan delimitation of, 113
Fraxinum mandshurica var *japonica*, cavitation in earlywood vessels of, during freezing and thawing, 897
Freezing, cavitation in earlywood vessels of *Fraxinum mandshurica* var *japonica* during, 897
Fruit
of banana, ethylene biosynthesis and ripening of, 1257
of peach, metallothionein-like protein from, 311
of strawberry, expansin gene in, 1273
of tomato, cyclin-dependent kinase A in, 857
Fungal xylanase, hypersensitive response and ethylene induction and, in tobacco and tomato, 345, 391
Fungus (*see also specific fungus*)
induced resistance to, in Norway spruce, 565

G

Galactose kinase Gal1 gene, from Arabidopsis, 1055
Gibberellin
biosynthesis of, in maize, 1037
vacuolar H^+-ATPase induced by, in tomato seeds, 1339
Gibberellin 3β-hydroxylase, regulation of, during de-etiolation of pea seedlings, 783
Gibberellin 2-oxidase, pea *SLENDER* gene encoding of, 775
Gibberellin 20-oxidase, regulation of, during de-etiolation of pea seedlings, 783
Gibberellin 20-oxidase gene, in watermelon seeds, 373
Glomus intraradices spores, on carrot roots, carbon metabolism in, 263
β 1–3 Glucanase, truncated, from grape, 1385
Glucose acyltransferase, purification and characterization of, in tomato, 453
Glucose polyester biosynthesis, in tomato, 453
Glufosinate, phloem transport of, in canola, 619
Glutamine synthetase
in Arabidopsis, carbon and amino acid modulation of, 301
in *Juglans nigra*, 3137
in wheat chloroplasts, oxidative degradation of, 471
γ-Glutamylcysteine synthetase, overexpression in Indian mustard, cadmium tolerance and accumulation and, 1169
Glutathione, synthesis of, in soybean and cowpea root nodules, 879
Glutathione synthetase, from Arabidopsis, plastidic targeting sequences in, 312
N-Glycans, Lewis a-containing, 333
Glycine max (*see* Soybean)
Glycyrrhiza echinata (*see* Licorice)
GmPM31 maturation protein, from soybean seeds, heat shock protein encoded by, 1383
Golgi stacks, stop-and-go movements of, acto-myosin system in, 1127
Gossypium spp. (*see* Cotton)
Grains, of wheat, protein and carbohydrate synthesis in, 871
Grape, truncated β 1–3 glucanase from, 1385
Grapevine
leaves of, photosynthesis inhibition in, O_2 uptake and, 675
mesophyll protoplasts of, active oxygen species in, 197
Gravitropism, by Arabidopsis roots, pH and, 1291
Green bean
cell wall development in, polysaccharide changes in, 363
root nodules of, stress-induced senescence of, 97
Sec61 cDNA clone from, 1383
Groundnut, proteinase inhibitors from, in inhibition of *Helicoverpa armigera* larval growth, 497
Growth
of Arabidopsis bud, *AXR1* gene and, 839
Arabidopsis parthenocarpy and, 437
of *Helicoverpa armigera* larva, host and non-host proteinase inhibitors and, 497
of maize root, surface pH and, 905
root environment for, effect on alcohol dehydrogenase in Arabidopsis roots and shoots, 429
in tobacco, Rubisco mutation and, 579
GTP, in protein import into pea chloroplasts, 237
GTP-binding protein cDNA, from cotton locules, 685
Guard cell(s)
of *Commelina communis*, response to elicitors, 147
of tomato, response to elicitors, 147
Guard cell protoplasts, of pea, sugar uptake by, 647
Guard cell vacuoles, of fava bean, magnesium effects on, 977
Guzmania monostachia, leaves of, chloroplast acclimation to high light in, 89
Gymnosperm-like germin-like protein, from Arabidopsis, 312

H

H^+-ATPase, vacuolar
in orchid, 1384
in tomato seeds, gibberellin induction of, 1339
Heat shock progein, encoded by GmPM31 maturation protein from soybean seeds, 1383
Heat shock protein gene, in tobacco seeds, 723
Helianthus annuus (*see* Sunflower)
Helicoverpa armigera larval growth, inhibition of, by plant proteinase inhibitors, 497
Helix-loop-helix transcription factor, auxin-induced, in cotton, 685
Herbivores, plant volatiles as defense against, 325
Hevea brasiliensis homolog HbLAR, in latex, 1384
Hexokinase, antisense repression of, in accumulation of starch in potato leaves, 123

Histidine, in *Thlaspi goesingense* nickel hyperaccumulation, 1117
Homogalacturonan-methyltransferase, from tobacco microsomal membranes, 281
Homoglutathione synthesis, in soybean and cowpea root nodules, 879
Hordeum spp. (*see* Barley)
Hyacinth, metallothionein-like protein type 2 from, 313
Hydrogen peroxide, elicitors and enhancers of, in cucumber hypocotyls, 1057
2-Hydroxyisoflavanone synthase, in isoflavonoid skeleton biosynthesis, in licorice, 821
Hypersensitive response, xylanase elicitor mutation and, in tobacco and tomato, 345, 391
Hypocotyls
of Arabidopsis, anion channel in, sulfate as substrate and activator in, 253
of cucumber, H_2O_2 elicitors in, 1057

I

Ice plant
leaves of, Crassulacean acid metabolism induction in, 545
ubiquitin-conjugating enzyme gene from, 685
Indian mustard, cadmium tolerance and accumulation in, γ-glutamylcysteine synthetase overexpression and, 1169
Insect herbivores, plant volatiles as defense against, 325
Invertases
in development and sucrose partitioning, 1
of maize
in developing kernels, 1025
rapid repression of by low oxygen, 599
Iron
acquisition of, in barley, NAAT genes in, 947
apoplastic pH and, in sunflower leaves, 1069
Isoamylase, in amylopectin biosynthesis, in rice endosperm, 399
Isocitrate dehydrogenase, NADP-dependent, in pea leaf senescence, 921
Isoflavonoid skeleton biosynthesis, in licorice, 821

J

Juglans nigra, glutamine synthetase from, 3137

K

Kalanchoë daigremontiana
carbon metabolism in, fructose 2,6-bisphosphate concentration and, 957
diurnal phases of, Rubisco activity in, 849
phospho*enol*pyruvate carboxylase kinase and CO_2 fixation in, metabolite control of, 889
Kernels, of maize, invertases in development of, 1025

L

Latex, *Hevea brasiliensis* homolog HbLAR in, 1384
LEA III proteins, seeds encoding, 1054
Leaves
of Arabidopsis
sulfate transporters in, 686
vein pattern in, auxin and, 1179
wound-induced *FAD7* gene expression and, 1239
of grapevine, photosynthesis inhibition in, O_2 uptake and, 675
of *Guzmania monostachia*, chloroplast acclimation to high light in, 89
of ice plant, Crassulacean acid metabolism induction in, 545
of maize
auxin transport disruption and, 1163
xylem pressure measurement in, 1191
of pea, senescence of, NADP-dependent isocitrate dehydrogenase in, 921
of potato, starch accumulation in, in antisense hexokinase repression, 123
of spinach, fatty acid transfer and lipid synthesis in, 1217
of sunflower, apoplastic pH and Fe^{3+} reduction in, 1069
of sweet potato, MAP kinase from, 312
of tobacco
elicitor-treated, *N*-acylethanolamine and, 1299
violaxanthin de-epoxidase in, 207
of tomato, ethylene-regulated expansion of, 1227
of tropical plants, photosystem II efficiency in, solar UV radiation and, 1349
of winter rye, snow mold-induced apoplastic proteins in, 665
Lewis a-containing *N*-glycans, 333
Licorice, isoflavonoid skeleton biosynthesis in, 821
Light (*see also* Ultraviolet B radiation)
cell type differentiation and, in aster cotyledons, 731
repression of *PHYA* gene expression in *Arabidopsis* by, 1207
Light treatment, wheat and tobacco chloroplast cytokinins and, 245
Lilium longiflorum (*see* Lily)
Lily, desiccation of, during pollen development, 1053
Lima bean
differential induction of plant volatile biosynthesis in, octadecanoid signaling pathway in, 153
herbivory-induced nerolidol synthase activity in, 173
Lipid synthesis, in spinach leaves, 1217
Locules, of cotton, GTP-binding protein cDNAs from, 685
Luffa cylindrica, cycloartenol synthase from, 1384
Lupin, proteoid roots of, organic acid efflux from, 1057
Lycopersicon spp. (*see* Tomato)

M

Magnesium, effect on fava bean guard cell vacuoles, 977
Maize
BETL1 gene locus in, 1143
endosperm of, starch-branching enzyme I gene in, 225
gibberellin biosynthesis in, 1037
invertases of, rapid repression of by low oxygen, 599
kernels of
invertases in development of, 1025
starch and, in low water potentials, 25
leaves of
auxin transport disruption and, 1163
xylem pressure measurement in, 1191
mannose-induced apoptosis in, 71
mitochondria of, voltage-dependent anion channel proteins, 686
Opaque2 protein in, diurnal regulation of, 1321
pre-mRNA splicing mutant in, 411
roots of, surface pH and elongation growth in, 905
S-domain receptor like protein kinase from, 685, 686
seedlings of, in rapid repression of invertases, 599
Manganese-superoxide dismutase gene, from rice, 1054
Mangrove, 2-enoyl-CoA hydratase from, 1055
Mannitol, glycerol replacement by, in yeast osmotic stress adaptation, 45
Mannose, plant cell apoptosis induced by, 71
MAP kinase (*see* Mitogen-activated protein kinase)
Mastigocladus laminosus, photosystem I in, 1054
Maturase K genes, from alfalfa plastids, 685
mby gene family, new genes in, 21
Medicago sativa (*see* Alfalfa)
Mercuric chloride, effect on water transport in aspen seedling roots, 939
Mesembryanthemum crystallinum (*see* Ice plant)
Mesophyll protoplasts
of grapevine, active oxygen species in, 197
of tobacco, active oxygen species in, 197
Metallothionein-like protein, from peach fruit, 311
Metallothionein-like protein type 2, from hyacinth, 313
O-Methyltransferases, of tobacco, in phenylpropanoid metabolism, 215
Microdochium nivale (*see* Pink snow mold)
Microsomal membranes, of tobacco, homogalacturonan-methyltransferase from, 281
Mitochondria
of maize, voltage-dependent anion channel proteins in, 686
of tobacco
alternative oxidase activity in, 793
alternative oxidase in phosphate and respiratory restriction in, 1309
Mitogen-activated protein kinase, from sweet potato leaves, 312
Mre11 homolog of *Arabidopsis*, recombinant mechanisms and, 312
Musa spp. (*see* Banana)
Mustard (*see* Indian mustard)
MYB-like genes, from Arabidopsis, 313
Myosins, in Bright Yellow-2 tobacco, 525

N

NAAT (*see* Nicotianamine aminotransferase)
N-Acylethanolamine, in elicitor-treated tobacco leaves, 1299
NADH-glutamate synthase gene transcription, nitrogen-stimulated, in rice, 805
NADP-dependent isocitrate dehydrogenase, in pea leaf senescence, 921
Nerolidol synthase, herbivory-induced, in lima bean and cucumber, 173
N-glycans, Lewis a-containing, 333
Nickel hyperaccumulation, in *Thlaspi goesingense*, histidine role in, 1117
Nicotiana tabacum (*see* Tobacco)
Nicotianamine aminotransferase gene, in barley iron acquisition, 947
Nitrogen, NADH-glutamate synthase gene transcription stimulated by, in rice, 805
Nod factor signal transduction, in alfalfa, Ca^{2+} in, 273
Nodules (*see* Root nodules)
Norway spruce, induced resistance to pathogenic fungi in, 565

O

Octadecanoid signaling pathway, in lima bean volatile biosynthesis, 153
Okadaic acid, as mimic of nitrogen-stimulated NADH-glutamate synthase gene transcription, in rice, 805
Oligogalacturonic acid, stomatal aperture reduction by, in response to elicitor, in tomato and *Commelina communis*, 147
Oligosaccharide metabolism, by raffinose family, in coleus, water deficit and, 987
Opaque2 protein, in maize, diurnal regulation of, 1321
Orchid, vacuolar H^+-ATPase from, 1384
Oryza spp. (*see* Rice)
Oryzacystatin-I, signal peptide in, 1383
Osmotic stress adaptation, sugar alcohols in, in yeast, 45
Oxidative burst, in cell death and defense responses, in tobacco, 163
Oxidized abietane diterpenes, in water-stressed rosemary plants, 1047
Oxygen, low, rapid repression of maize invertases by, 599
Oxygen uptake, inhibition of photosynthesis in grapevine leaves, 675
Oxygenic photosynthesis, in *Synechocystis* spp., PsbY protein in, 1267

P

Parthenocarpy, in *Arabidopsis*, growth regulator induction of, 437
Pathogenesis-related protein PR-1, from potato, 1384
Pea
  chloroplasts of, GTP in protein import into, 237
  guard cell protoplasts of, sugar uptake by, 647
  leaves of, senescence of, NADP-dependent isocitrate dehydrogenase in, 921
  root nodules of, stress-induced senescence of, 97
  seedlings of, gibberellin 3β-hydroxylase and gibberellin 20-oxidase regulation during de-etiolation of, 783
  SLENDER gene of, gibberellin 2-oxidase encoded by, 775
  UV-B radiation of
    genes regulated by, 479
    stomatal closure and, 489
Peach, fruit of, metallothionein-like protein from, 311
Peroxidase, bacteria-induced, from cotton, 312
Persea americana (*see* Avocado)
Petunia
  S-adenosylmethionine from, 1053
  ethylene-insensitive mutant of, root formation in, 53
  zinc finger transcription factor gene expression in, stress induction of, 1153
Petunia x hybrida (*see* Petunia)
pH
  apoplastic, Fe^{3+} reduction and, in sunflower leaves, 1069
  Arabidopsis root gravitropism and, 1291
  of maize root surface, elongation growth and, 905
Phaseolus lunatus (*see* Lima bean)
Phaseolus vulgaris (*see* Green bean)
Phenylalanine ammonia lyase, oxidative burst and, in tobacco, 163
Phenylcoumaran benzylic ether reductase gene, from *Populus trichocarpa*, 311
Phenylpropanoid metabolism, tobacco *O*-methyltransferases in, 215
Phloem transport of glufosinate and acetyl-glufosinate, in canola, 619
Phosphatidylinositol 4-kinase, spinach plasma membranes associated with, 507
Phospho*enol*pyruvate carboxylase kinase, in Crassulacean acid metabolism plants, metabolite control of, 889
Photorespiration, in tobacco, Rubisco mutation and, 579
Photosynthesis
  inhibition of in grapevine leaves, O_2 uptake and, 675
  oxygenic, in *Synechocystis* spp., PsbY protein in, 1267
Photosynthetic electron transport, in oxidative degradation of glutamine synthetase in wheat chloroplasts, 471
Photosystem I, in *Mastigocladus laminosus*, 1054
Photosystem II
  efficiency in tropical plant leaves, solar UV radiation and, 1349
  subunit PsbW of, from *Chlamydomonas reinhardtii*, 313
Photosystem reaction center, subunit V of, from *Tortula ruralis*, 313
PHYA gene expression, in Arabidopsis, light-imposed repression of, 1207
Phytochrome, prokaryotes and, 1059
Phytochrome A, in Arabidopsis seedlings, 571
Phytoene desaturase, from rice, 312
Picea abies (*see* Norway spruce)
Pigeonpea, proteinase inhibitors from, in inhibition of *Helicoverpa armigera* larval growth, 497
Pink snow mold, apoplastic proteins induced by, in rye leaves, 665
Pinus radiata, male cones of, anther-specific and pathogenesis response genes in, 1103
Pisum sativum (*see* Pea)
Plant cells, protein folding in, 695
Plant gene register, 311, 685, 1053, 1383
Plant volatiles, as defense against insect herbivores, 325
Plasma membranes, of spinach, phosphatidylinositol 4-kinase associated with, 507
Plastidic pyruvate dehydrogenase, from *Arabidopsis*, 312, 1057
Plastids, of alfalfa, tRNA-Lys and maturase K genes from, 685
Pollen development, lily desiccation during, 1053
Polygalacturonase, in tomato seed germination, 419
Polysaccharide, in developing green bean cell walls, 363
Populus tremuloides (*see* Aspen)
Populus trichocarpa, phenylcoumaran benzylic ether reductase gene from, 311
Pore size, of *Chenopodium album* cell walls, borate ester and rhamnogalacturonan II cross-linking and, 829
Potassium channel, inactivation gating by, in animal, effect on plant channels, 995
Potassium leakage, copper-induced, from Arabidopsis seedlings, 1375
Potato
  cystathionine γ-synthase from, 1053
  leaves of, starch accumulation in, in antisense hexokinase repression, 123
  pathogenesis-related protein PR-1 from, 1384
  proteinase inhibitors from, in inhibition of *Helicoverpa armigera* larval growth, 497
  tubers of, anionic peroxidase of, 135
Prokaryotes, phytochrome and, 1059
Proline, metabolism of, in tobacco mutant, 1281
Proline-rich protein genes, in Arabidopsis cell walls, 1081
Protein folding, in plant cells, 695
Protein import, in to pea chloroplasts, GTP in, 237
Protein phosphatase 2A, regulatory subunit of, in Arabidopsis, 311
Protein synthesis, in wheat grain, 871
Proteoid roots, 317
  of white lupin, organic acid efflux from, 1057
Protoplasts, mesophyll (*see* Mesophyll protoplasts)
Protoporphyrinogen IX oxidase, from soybean, 1384
Prunus avium (*see* Cherry)
PsbY protein, in oxygenic photosynthesis in *Synechocystis* spp., 1267
Psophocarpus tetragonolobus (*see* Winged bean)
Pullulanase, in amylopectin biosynthesis, in rice endosperm, 399

R

Raffinose family oligosaccharide metabolism, in coleus, water deficit and, 987
Rhamnogalacturonan II, borate ester cross-linking to, *Chenopodium album* cell wall pore size and, 829
Ribulose-1,5-bisphosphate carboxylase/oxygenase (Rubisco)
  modulation of, in *Kalanchoë daigremontiana* diurnal phases, 849
  mutation of, in tobacco, photorespiration and growth and, 579
Rice
  cDNA similar to cycloartenol synthase in, 686
  cell wall of, resistance gene homolog from, 686
  cells of, NADH-glutamate synthase gene transcription in, 805
  endosperm of, amylopectin biosynthesis in, starch-debranching enzymes in, 399
  manganese-superoxide dismutase gene from, 1054
  phytoene desaturase from, 312
  γ-tubulin encoded in, 1384
  UMP kinase from, 1383
RNA degradation, in *Chlamydomonas reinhardtii* chloroplasts, 1367
Root(s)
  of Arabidopsis
    alcohol dehydrogenase gene in, root growth environment and, 429
    gravitropism by, pH and, 1291
    wound-induced *FAD7* gene expression and, 1239
  of carrot, carbon metabolism in *Glomus intraradices* spores on, 263
  formation of, in ethylene-insensitive plants, 53
  of maize, surface pH and elongation growth in, 905
  proteoid, of white lupin, organic acid efflux from, 1057
  protoeid, 317
Root cells, of Arabidopsis, AtVAM3p in prevacuolar compartment of, 929
Root nodules
  of *Casuarina glauca*, *Frankia*-infected compartments of, flavan delimitation of, 113
  of cowpea, glutathione and homoglutathione synthesis in, 879
  of green bean, stress-induced senescence of, 97
  of pea, stress-induced senescence of, 97
  of soybean, glutathione and homoglutathione synthesis in, 879
Rosemary, water-stressed, α-tocopherol and oxidized abietane diterpenes in, 1047
Rosmarinus officinalis (*see* Rosemary)
Rubisco (*see* Ribulose-1,5-bisphosphate carboxylase/oxygenase)
Rumex palustris, submergence of, ACC oxidase activity in, 189
Rye, leaves of, snow mold-induced apoplastic proteins in, 665

S

Saccharomyces cerevisiae, water stress in, sugar alcohols in, 45
Saccharomyces cerevisiae YDJ1p, Arabidopsis AtJ3 as homolog to, 1053
Scopoletin consumption, oxidative burst and, in tobacco, 163
S-domain receptor like protein kinase, from maize, 685, 686
Sec61 cDNA clone, from green bean, 1383
Secale cereale (*see* Winter rye)
Seedlings
  of Arabidopsis
    copper-induced K^+ leakage from, 1375
    phytochrome A in, 571
  of aspen, root water transport in, mercuric chloride and, 939
  of maize, in rapid repression of invertases, 599
  of pea, gibberellin 3β-hydroxylase and gibberellin 20-oxidase regulation during de-etiolation of, 783
  of tobacco, calcium signaling pathway regulation of calmodulin gene expression in, 705
Seeds
  of Arabidopsis, fatty acids in, 1359
  of soybean, GmPM31 maturation protein from, heat shock protein encoded by, 1383
  of tobacco, heat shock protein gene expression in, 723
  of tomato
    germination of, polygalacturonase in, 419
    gibberellin-induced vacuolar H^+-ATPase in, 1339
  of watermelon, gibberellin 20-oxidase gene in, 373
Senescence
  of pea leaves, NADP-dependent isocitrate dehydrogenase in, 921
  stress-induced, in root nodules of pea and green bean, 97
Shoots
  of Arabidopsis, alcohol dehydrogenase gene in, root growth environment and, 429
  of tomato, ethylene-regulated growth of, 1227
SNAREs (*see* Soluble *N*-ethylmaleimide sensitive factor attachment protein receptors)
SNF1-related protein kinase, wheat *WPK4* gene encoding, sucrose and cytokinin modulation of, 813
Snow mold, apoplastic proteins induced by, in rye leaves, 665
Solanum tuberosum (*see* Potato)
Soluble *N*-ethylmaleimide sensitive factor attachment protein receptors (SNAREs), in Arabidopsis root cell prevacuolar compartment, 929
Sorbitol, glycerol replacement by, in yeast osmotic stress adaptation, 45
Soybean
  protoporphyrinogen IX oxidase from, 1384
  root nodules of, glutathione and homoglutathione synthesis in, 879
  seeds of, GmPM31 maturation protein from, heat shock protein encoded by, 1383
  ubiquitin carrier protein from, 686
Spider mite, nerolidol synthase activity induced by, in lima bean and cucumber, 173
Spinach
  leaves of, fatty acid transfer and lipid synthesis in, 1217
  plasma membranes of, phosphatidylinositol 4-kinase associated with, 507
Spinacia oleracea (*see* Spinach)
Spruce, induced resistance to pathogenic fungi in, 565
STAG1, from strawberry, 686
Starch
  accumulation in potato leaves, in antisense hexokinase repression, 123
  maize kernel number and, in low water potentials, 25
Starch-branching enzyme I gene, in maize endosperm, 225
Starch-debranching enzymes, in amylopectin biosynthesis, in rice endosperm, 399
Stearoyl-acyl carrier protein desaturase, from avocado, 1054
Stems, of Arabidopsis, wound-induced *FAD7* gene expression and, 1239
STM homolog, encoded in broccoli, 1383
Stomatal aperture, oligogalacturonic acid and chitosan reduction of, in response to elicitor, in tomato and *Commelina communis*, 147
Stomatal opening/closure, of pea
  sugar uptake and, 647
  UV-B radiation and, 489
Strawberry
  AGAMOUS cDNA (STAG1) from, 686
  ripening fruit of, expansin gene in, 1273
Succinic semialdehyde dehydrogenase, from Arabidopsis, 589
Sucrose
  in modulation of wheat *WPK4* gene encoding SNF1-related protein kinase, 813
  partitioning of, invertases in, 1
Sugar, uptake of, by pea guard cell protoplasts, 647
Sugar alcohols, in osmotic stress adaptation, in *Saccharomyces cerevisiae*, 45
Sugar starvation, cellular and genetic responses to, 687
Sulfate, as substrate and activator in anion channel in Arabidopsis hypocotyl cells, 253
Sulfate transporters, in Arabidopsis leaves, 686
Sunflower, leaves of, apoplastic pH and Fe^{3+} reduction in, 1069
Sweet cherry, S-RNases from, 1054
Sweet potato, leaves of, MAP kinase from, 312
Symbiodinium spp., inorganic carbon-concentrating mechanism in, 1247
Synechocystis spp., oxygenic photosynthesis in, PsbY protein in, 1267

T

TAP42, protein phosphatase 2A catalytic subunit interaction with, in Arabidopsis, 609
Temperature (*see* Chilling)
Thawing, cavitation in earlywood vessels of *Fraxinum mandshurica* var *japonica* during, 897
Thlaspi goesingense, nickel hyperaccumulation in, histidine role in, 1117
Threonyl-tRNA synthetase, from Arabidopsis, 1054
Tobacco
  Bright Yellow-2
    amyloplast development in, hormonal control of, 461
    myosins in, 525
  chloroplasts of, cytokinins in, light/dark treatment and, 245
  leaves of
    elicitor-treated, *N*-acylethanolamine and, 1299
    violaxanthin de-epoxidase in, 207
  mesophyll protoplasts of, active oxygen species in, 197
  O-methyltransferases of, in phenylpropanoid metabolism, 215
  microsomal membranes of, homogalacturonan-methyltransferase from, 281
  mitochondria of, alternative oxidase in, 793, 1309
  oxidative burst, cell death, and defense responses in, 163
  proline metabolism in, 1281
  Rubisco mutation in, photorespiration and growth and, 579
  seedlings of, calcium signaling pathway regulation of calmodulin gene expression in, 705
  seeds of, heat shock protein gene expression in, 723
  xylanase elicitor mutation in, hypersensitive response and ethylene induction and, 345, 391
α-Tocopherol, in water-stressed rosemary plants, 1047
Tomato
  ACC synthase in, conserved arginine 286 in, 913
  δ-carotene desaturase from, 1384
  cell walls of
    cellulose and xyloglucan in mechanics of, 657
    drought-regulated protein in, 557
  chloroplasts of, response to flame wounding and electrical stimulation, 517
  ethylene-insensitive mutant of, root formation in, 53
  flacca mutant of, aldehyde oxidase and xanthine dehydrogenase in, 315
  fruit of, cyclin-dependent kinase A in, 857
  glucose polyester biosynthesis in, 453
  guard cells of, response to elicitors, 147
  leaves of, ethylene-regulated expansion of, 1227
  seeds of
    germination of, polygalacturonase in, 419
    gibberellin-induced vacuolar H^+-ATPase in, 1339
  shoots of, ethylene-regulated growth of, 1227
  vacuolar processing enzyme from, fruit-specific clone for, 1054
  xylanase elicitor mutation in, hypersensitive response and ethylene induction and, 345, 391
Tonoplast integrity, in zinnia, tracheary element differentiation and, 763
Tortula ruralis, photosystem reaction center subunit V from, 313
Tracheary element differentiation, tonoplast integrity loss and, in zinnia, 763
Triticum aestivum (*see* Wheat)
tRNA-Lys gene, from alfalfa plastids, 685
Tropical plants, leaves of, photosystem II efficiency in, solar UV radiation and, 1349
Tubers, of potato, anionic peroxidase of, 135
γ-Tubulin, encoded in rice plant, 1384
α-Tubulin, gene-specific regulation of, in cotton fibers, 181
Tunicamycin, resistance to, in Arabidopsis, 353

U

Ubiquitin carrier protein, from soybean, 686
Ubiquitin-conjugating enzyme gene, from ice plant, 685
Ultraviolet B radiation
  pea genes regulated by, 479
  pea stomatal closure and, 489
  petunia zinc finger transcription factor gene induced by, 1153
  photosystem II efficiency and, in tropical plant leaves, 1349
UMP kinase, from rice, 1383
Uridine diphospho L-arabinose synthesis, in Arabidopsis *mur4* mutant, 383

V

Vacuolar H^+-ATPase
  from orchid, 1384
  in tomato seeds, gibberellin induction of, 1339
Vacuolar processing enzyme, fruit-specific clone for, in tomato, 1054
VDAC proteins (*see* Voltage-dependent anion channel proteins)
Vicia faba (*see* Fava bean)
Vigna unguiculata (*see* Cowpea)
Violaxanthin de-epoxidase, in tobacco leaves, 207
Vitis vinifera (*see* Grapevine)
Volatile biosynthesis, in lima bean, octadecanoid signaling pathway in, 153
Volatiles, from plants, as defense against insect herbivores, 325
Voltage-dependent anion channel proteins, in maize mitochondria, 686

W

Water hyacinth (*see* Hyacinth)
Water stress (*see also* Desiccation; Drought)
  in inhibition of photosynthesis in grapevine leaves, O_2 uptake and, 675
  petunia zinc finger transcription factor gene induced by, 1153
  raffinose family oligosaccharide metabolism and, in coleus, 987
  of rosemary plants, α-tocopherol and oxidized abietane diterpenes in, 1047
Water transport, in aspen seedling roots, mercuric chloride and, 939
Watermelon, seeds of, gibberellin 20-oxidase gene in, 373
Wheat
  chloroplasts of
    cytokinins in, light/dark treatment and, 245
    glutamine synthetase in, oxidative degradation of, 471
  grains of, protein and carbohydrate synthesis in, 871
  WPK4 gene in, sucrose and cytokinin modulation of, 813
  (1→4)-β-xylan endohydrolase gene from, 685
White lupin, proteoid roots of, organic acid efflux from, 1057
Winged bean, proteinase inhibitors from, in inhibition of *Helicoverpa armigera* larval growth, 497
Winter rye, leaves of, snow mold-induced apoplastic proteins in, 665
Wound
  FAD7 gene expression induced by, in Arabidopsis, mediation of by leaves, stems, and roots, 1239
  petunia zinc finger transcription factor gene induced by, 1153

X

Xanthine dehydrogenase, in *flacca* mutant of tomato, 315
(1→4)-β-Xylan endohydrolase gene, from wheat, 685
Xylanase elicitor mutation, hypersensitive response and ethylene induction and, in tobacco and tomato, 345, 391
Xylem pressure, measurement of, in maize leaves, 1191
Xyloglucan, in tomato cell wall mechanics, 657

Y

Yeast (*see also specific yeast*)
  water stress adaptation in, sugar alcohols in, 45

Z

Zea mays (*see* Maize)
Zinc finger transcription factor gene, in petunia, stress induction of, 1153
Zinnia, tonoplast integrity in, tracheary element differentiation and, 763
Zinnia elegans (*see* Zinnia)